REMARKS

Applicants submit this Amendment and Response in reply to the Official Action dated January 2, 2008. Applicants submit that the Amendment and Response is fully responsive for at least the reasons set forth herein.

At the onset, Applicants note that claim 18 has been amended herewith. Claim 18 has been amended to recite, *inter alia*, that the optical lens and the imaging element are arranged to oppose each other at opposite ends of the tubular member in an airtight structure when the bellow portion moves. No new matter has been added to the application by way of the aforementioned amendment.

Applicants submit that the pending claims are patentable over any of the references cited in the Official Action, whether taken alone or in any combination thereof. In the Official Action, claims 18-20 and 22-28 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Takahashi (previously cited) in view of Chikama et al., U.S. Patent No. 5,520,222 (hereinafter "Chikama").

Independent claim 18 recites, *inter alia*, the optical system support member being hermetically joined to the first end and the imaging element support member being hermetically joined to the second end thereby airtightly sealing the inner space, the tubular member further comprising a bellows portions between the first and second ends adapted for three dimensional movement, the optical lens and the imaging element are arranged to oppose each other at opposite ends of the tubular member in an airtight structure when the bellow portion moves and an adjustment mechanism for adjusting relative positions of the optical system support member and the imaging element support member in three dimensions, said three dimensions being a direction of the optical axis optical system, a direction orthogonal to the direction of the optical

axis and a tilt direction to the optical axis and a bellows portion between said first and second ends adapted for three dimensional movement.

Applicants submit that the cited references fail to teach, suggest or render obvious each and every limitation of the claim. Notably, neither reference teaches varying the position of the optical or image support member located at the oppose ends of the bellows portion. Rather, Chikama only describes that the bellows-like tube is solely employed as a flexible tube. In contrast, in the claimed invention, the image and optical support member are arranged to oppose each other at the oppose ends of an air-tight structure which is formed in part of a bellow portion.

The optical performance of the system can be adjusted by varying the distance between the image and optical support member by expanding, shrinking or bending the bellows portion while keeping an airtightness between both the image and optical support members which are connected by the bellows portion.

Additionally, Chikawa does not teach that the bellows portion is between the optical system support member and the imaging element support member and fails to teach that members at each end need distance adjustment such that they oppose each other.

Furthermore, none of the described embodiments (in Chikama) teach movement in the X, Y and Z directions, i.e., a direction of the optical axis optical system, a direction orthogonal to the direction of the optical axis and a tilt direction to the optical axis. At best, Chikama teach movement in the X and Y directions. Chikama teaches that the bellow portion is moved using at least two wires. The wires are pulled to changes the position of the bellows portion. However, in each embodiment, movement in the axial direction (Z) is prevented.

Chikama describes in one embodiment that:

> [t]he operating wires 51 and 52 are passed through the internal space 32 of the coil 31, and are fixedly secured at their distal ends respectively to diametrically-opposite upper and lower portions (FIGS. 1 and 2) of the cylindrical portion 41b of the frame 41 of the rigid portion 40 by brazing. The positions of fixing of the distal ends of the operating wires 51 and 52, as well as the positions of fixing of the distal ends of the above guide coils, are circumferentially spaced 90.degree. from the pair of strips 33.
>
> The connecting portions 33b of the strips 33 have a relatively high rigidity to withstand a compressive force exerted in the longitudinal direction of the coil 31 upon pulling of the operating wire 51 or 52. Therefore, those sections of the turn portions 31a of the coil 31 engaged with each strip 33 are maintained at substantially constant intervals. As a result, the coil 31 and hence the bending portion 30 **can not be bent in a direction X indicated in FIG. 4, and can be bent only in a direction Y in FIG. 4 (i.e., upward-downward direction in FIG. 1)**.

Col. 4, lines 46-65 (emphasis added).

In this embodiment, movement is only allowed in the up and down direction.

In another embodiment, Chikawa states that:

> a coil 31 can be bent in all directions. More specifically, the coil 31 is divided into alternate regions M and N in its axial direction. Each region includes, for example, five turn portions 31a. A pair of strips 33 are connected respectively to diametrically-opposite sections of the turn portions 31a of each region M which sections are spaced from each other in a direction X. Also, a pair of strips 33 are connected respectively to diametrically-opposite sections of the turn portions 31a of each region N which sections are spaced from each other in a direction Y. Four operating wires (not shown) are passed through an internal space of the coil 31. Two of the four operating wires are disposed in diametrically-opposite relation to each other in the direction X with respect to the coil 31 whereas the other two operating wires are disposed in diametrically-opposite relation to each other in the direction Y with respect to the coil 31. **When one of the former two operating wires is pulled, the regions N of the coil 31 are bent in the direction X, with the regions M of the coil 31 hardly deformed. When one of the latter two operating wires is pulled, the regions M of the coil 31 are bent in the direction Y, with the regions N of the coil 31**

> **hardly deformed.** Thus, the coil 31 can be bent in **four directions** and hence all directions.

Col. 6, lines 26-49 (emphasis added).

In this embodiment, movement is only allowed in X and Y directions. The description of "all directions" is misleading because movement in the axial or Z direction is not allowed.

In another embodiment, Chikawa states that:

> [a] pair of limitation members 69 of metal each in the form of a strip or elongated plate are mounted respectively on diametrically-opposite portions of the outer periphery of the bellows 60 spaced from each other in a direction X, the pair of limitation members 69 extending in the axial direction of the bellows 60 over generally the entire length thereof.
>
> The limitation members 69 limit the axial compression of the bellows 60, and allow the bellows 60 to be **bent only in a direction Y perpendicular to a plane in which the limitation members 69 lie.**
>
> In the above construction, when one of the operating wires 51 and 52 is pulled, one side of the bellows 60 along which the pulled operating wire is disposed is axially contracted whereas the other side of the bellows 60 disposed in diametrically opposite relation to the one side thereof is axially expanded. At this time, because the axial compression of the bellows 60 is limited by the limitation members 69, the overall length of the bellows 60 on the axis or centerline thereof is not changed. As a result, the bellows 60 is bent toward the side of the pulled operating wire. The purposes of the limitation members 69 are to positively convert the pulling force of the operating wire 51, 52 into a force for bending the bellows 60, and also to allow the bellows 60 to be bent in the intended direction.

Col. 7, lines 22-66 (emphasis added).

In other words, movement is limited to the Y direction.

In yet another embodiment, Chikawa describes that:

> spherical pieces 62 of metal (hereinafter referred to as "metal ball") are used as limitation means. Two rows of metal balls 62 are arranged over generally the entire length of the bellows 60, and

> more specifically are arranged respectively along two imaginary straight lines which extend parallel to the axis of the bellows 60 and are disposed respectively at diametrically-opposite portions of the corrugated peripheral wall of the bellows 60...
>
> The bellows 60 can not be axially expanded or contracted at those portions thereof to which the metal balls 62 are secured, and can be axially expanded or contracted only at those portions thereof where the metal balls 62 are not attached. **As a result, the bellows 60 can not be bent in a direction X (FIG. 16), and can be bent only in a direction Y perpendicular to a plane in which the two rows of metal balls 62 are disposed.**

Col 8, lines 1-25

Lastly, in another embodiment, Chikawa describes that "when one of the operating wires 51 and 52 is pulled, the bellows 60 cannot be bent at the regions P, but can be bent at the regions Q in the direction Y (FIG. 18). When one of the operating wires 53 and 54 is pulled, the bellows 60 can not be bent at the regions Q, but can be bent at the regions P in the direction X (FIG. 18)."

Accordingly, in each disclosed embodiment, Chikawa teaches limitations on the movement of the bellows portion in at least one direction. None of the embodiment describes three-dimensional movement, i.e., X, Y, and Z.

Additionally, the references fail to teach the limitation of the optical system support member being hermetically joined to the first end and the imaging element support member being hermetically joined to the second end thereby airtightly sealing the inner space, as recited.

In sum, the Examiner asserts that the optical system supporting member is the optical system driving means 78 and the imaging element supporting member is the CCD driving means. 16. *Pro arguendo*, even if the Examiner's assertion is correct, elements 16 and 78 are not hermetically joined to an end of the tubular member.

In Takahashi, Figure 10 depicts a tubular member surrounding the optical system. At best, the figure depicts that the optical system is fixed to the tubular member. However, the

imaging system (2a and 2b) is not attached to the tubular member. Figure 10 does not even depict elements 16 and 78. Therefore, Takahashi does not teach that the optical system support member is hermetically joined to the first end and the imaging element support member is hermetically joined to the second end. Furthermore, Figure 10 does not depict any structure that either is capable of keeping airtightness. Moreover, Takahashi does not teach or suggest connecting the imaging section to the optical section. Figure 10 clearly illustrates that the imaging section and the optical section are not connected. Accordingly, Takahashi fails to teach the claimed tubular member (claimed configuration).

Chikama fails to cure these deficiencies.

Accordingly, Takahashi and Chikama fail to teach arranging the optical and image support members at opposite ends of the bellows portion and adjusting the positions thereof to oppose each other using the deformation of the inner space of the bellows portion by having the bellows portion expand, shrink or deform.

Therefore, claim 18 is patentable over the cited combination.

Claims 19, 20 and 22-28 are patentable over the cited combination based at least upon the above-identified analysis in view of their dependency, whether directly or indirectly, from claim 18.

Applicants submit that claim 20 is separately patentable over the cited combination. claim 20 recites that the imaging element support member further comprises an imaging element fixing portion for fixing the imaging element and an imaging element frame member defining an inner space in which the imaging element fixing portion is located, **the imaging element frame member being hermetically joined to the tubular member**.

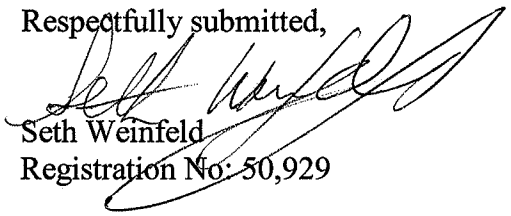
Takahashi and Chikama fail to teach that the frame member is hermetically joined to the tubular member.

In the outstanding Official Action, the Examiner rejected claims 29-35 under 35 U.S.C. § 103 (a) as being unpatentable over Takahashi, Chikawa in further view of MacKinnon. Applicants respectfully disagree with the rejection and traverse with at least the above-identified analysis. MacKinnon fails to cure the above-identified deficiencies.

Based upon the foregoing, Applicants respectfully request that the Examiner withdraw the rejections of claims 18-20, 22-35 pursuant to 35 U.S.C. § 103 (a).

In conclusion, the Applicants believe that the above-identified application is in condition for allowance and henceforth respectfully solicits the Examiner to allow the application. If the Examiner believes a telephone conference might expedite the allowance of this application, the Applicants respectfully request that the Examiner call the undersigned, Applicants' attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,



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